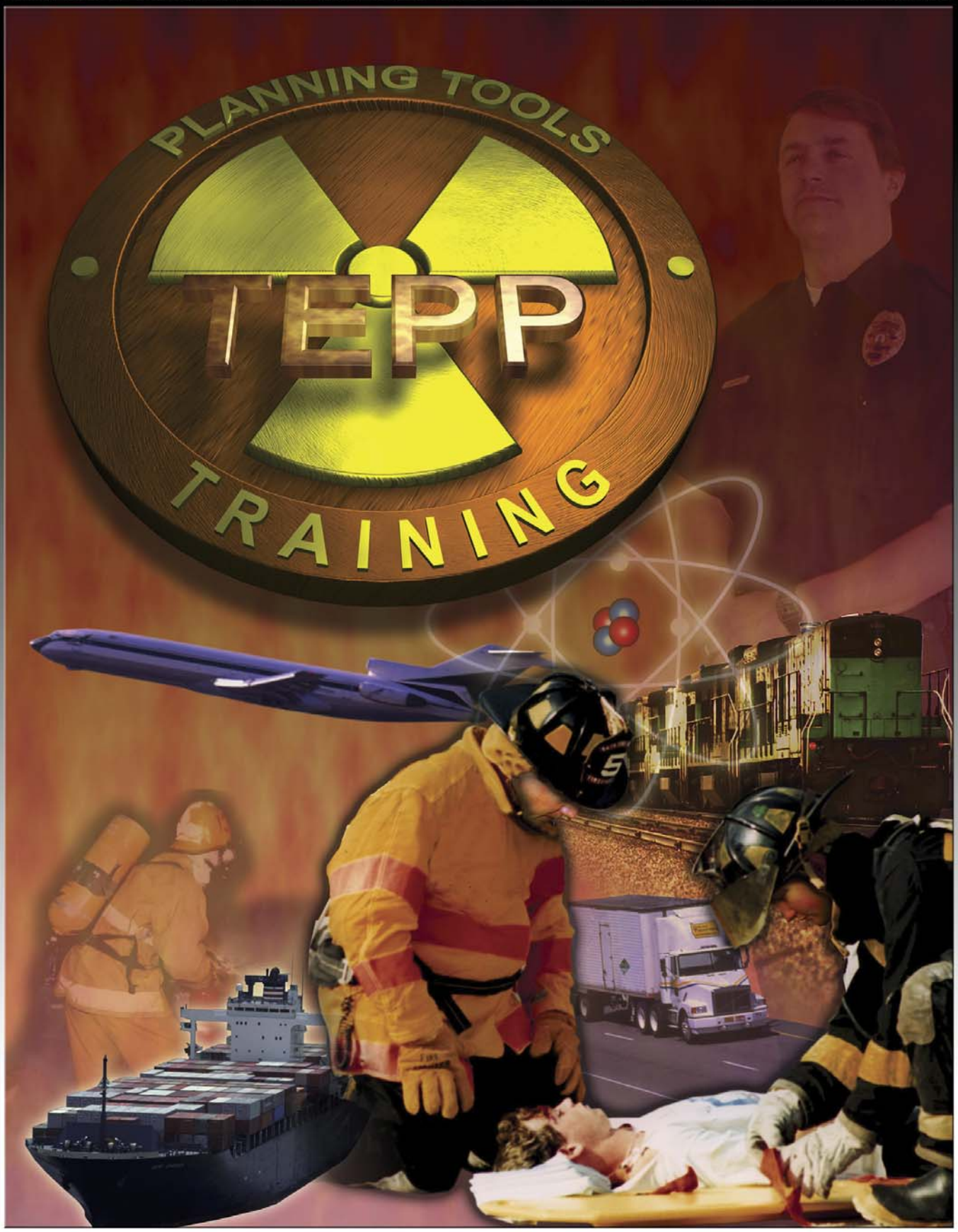
TRANSPORTATION EMERGENCY PREPAREDNESS PROGRAM



DEPARTMENT OF ENERGY

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Model First Responder Procedure for Radiological Transportation Accidents

Prepared for the Department of Energy Office of Transportation and Emergency Management

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Model First Responder Procedure for Radiological Transportation Accidents

ASSUMPTIONS

This Transportation Emergency Preparedness Program (TEPP) Model First Responder Procedure for Transportation Accidents involving Radioactive Materials contains the recommended actions for response to transportation incidents involving radiological materials.

The following assumptions are to be considered when reviewing this procedure:

- This procedure is not all inclusive but was developed to meet the minimum national guidance for responding to a transportation accident involving radiological materials.
- This procedure is designed for use by trained and qualified emergency responders. Additional procedural requirements may be implemented according to appropriate state, tribal or local requirements.
- This response procedure should be utilized appropriately according to the conditions encountered when arriving at a radiological materials accident.
- All emergency response personnel have been trained in the use of an Incident Management System such as the Incident Command System.
- That all emergency response organizations utilize the Emergency Response Guidebook (ERG) as a tool in determining response actions.
- All emergency response personnel are knowledgeable in the use of the 2000 Emergency Response Guidebook, the responder has completed the Employee's Receipt and the receipt has been filed as noted in the 2000 ERG.

1.0 PURPOSE

The purpose of this procedure is to provide guidance for responding to transportation accident involving radioactive materials.

2.0 SCOPE

This procedure applies to those emergency responders who have responsibility for responding to transportation accidents that involve radiological materials.

3.0 RESPONSIBILITIES

3.1 First Responder Organizations

3.1.1 Size up accident scene using appropriate reference information and sources.

3.1.2 Initiate response actions as outlined in the Emergency Response Guidebook.

3.1.3 Relay information to state, tribal or local official as required by state, tribal, or local policies, plans, or procedures.

3.1.4 Maintain accident scene control until relieved by a higher authority.
3.1.5 Provide accident scene turnover to the relieving authority.

4.0 RECORDS

As needed.

5.0 FREQUENCY

As needed.

6.0 REFERENCES

6.1 2000 Emergency Response Guidebook
6.2 Transportation of Radioactive Materials Q&A - Oak Ridge Associated Universities
6.3 U. S. Department of Energy Transportation Information Wheel
6.4 International Association of Firefighters - Training for Hazardous Materials Response: Radiation

7.0 EQUIPMENT

As outlined in the ERG and/or as required by state, tribal or local procedures, plans, or policies.

8.0 LOCATION

Procedure use as appropriate for accident location.

9.0 SAFETY

9.1 Respond and work within safety guidelines specified within the 2000 Emergency Response Guidebook.
9.2 Involve appropriate state, tribal, local, shipper, carrier officials to disposition accident.

10.0 TERMS/DEFINITIONS

ALARA—As low as reasonably achievable. Guide for radiation exposure protection.

Control Zones—The areas at a hazardous materials incident that are designated based upon safety and the degree of hazard.

Decontamination—The physical and/or chemical process of reducing and preventing the spread of contamination at a hazardous materials incident.

DOE—United States Department of Energy

Dose—A general term for the quantity of radiation energy absorbed.

Dose Rate—The dose delivered per unit time. It is usually expressed as rads per hour or in multiples or sub-multiples of this unit, such as millirads per hour. The dose rate is commonly used to indicate the level of hazard from a radioactive source.

DOT—US Department of Transportation.

ERG—Emergency Response Guidebook - Booklet that provides guidance during the initial phases of transportation emergencies involving all hazardous materials.

Exposure—A quantity used to indicate the amount of ionization in air produced by x- or gamma radiation. This unit is the Roentgen (R). For practical purposes, one roentgen is comparable to 1 rad or 1 rem for x- and gamma radiation.

Hazardous Materials—A substance or material which has been determined to be capable of posing an unreasonable risk to health, safety and property when transported in commerce.

IC—Incident Commander - The person responsible for all decisions relating to the management of the incident.

ICS—Incident Command System - An organized approach to control and manage operations at an emergency incident.

Industrial Packages—Must be highly durable, have tight seals, and act as shields to prevent exposure to handlers and drivers.

Monitoring Equipment—Instruments and devices used to identify and quantify contaminants.

Qualified Person—A person with specific training, knowledge, and experience in the area for which the person has the responsibility and/or authority to control.

Radiation Authority—A Federal, State, or Tribal agency designated official. Responsibility include evaluating radiological hazard conditions during normal operations and emergencies.

Radioactive White—I - 0.5 mR/hr maximum on surface.

Radioactive Yellow—II - 50 mR/hr maximum on surface; 1 mR/hr maximum at 1 meter.

Radioactive Yellow—III - 200 mR/hr maximum on surface; 10 mR/hr maximum at 1 meter.

Type A Packages—Must meet the requirements for strong tight containers and must be capable of preventing spills and leaks under normal driving conditions. Most low-level radioactive waste is shipped by truck in type A and strong tight containers.

Type B Packages—Are designed for radioactive materials with a higher level of radioactivity. They must meet all Type A standards and must be able to withstand a severe accident with no loss of shielding and no release of radioactive materials.

Model First Responder Procedure for Radiological Transportation Accidents

11.0 RESPONSE PROCEDURE

See attached First Responder Flow Charts for Transportation Accidents Involving Radioactive Materials.

First Responder Flow Charts for Transportation Accident Involving Radiological Materials

Approach incident cautiously from upwind. Stay clear of all spills, vapors, fumes and smoke.

Perform scene "size-up". Visually assess the accident from a distance. Try to identify:

- Spills, leaks, or fire
- Apparent hazardous properties of the cargo
- Victims
- Type vehicle and containers involved
- Placards and markings
- Container damage
- Any person knowledgeable of the scene
- Shipping papers
- Runoff problems: Work area hazards; exposure problems
- Entry Point

Notify Emergency Communications Center of the situation and assume position of incident commander until relieved by higher authority.

Establish command post at least 150m/500ft upwind from entry point. Establish lines of communication. These are the priorities for First Responders:

- Safety of response personnel
- Rescue injured personnel
- Secure the scene
- Isolate the area and deny entry
- Assure safety of people and environment
- Monitor radiation levels (if equipment is available)
- Restrict entry until radiological emergency response team arrives

Evaluate information and consult ERG to identify hazards and cargo. Follow guidelines in ERG until other assistance arrives.

Establish zones; ensure you have enough room to operate; ensure entry point is at least 50m/150ft upwind from hazard area.

Don protective clothing and SCBA

Are there victims?

- Yes → Go to Response Flow Chart Attachment #1
- No → Standby for possible injuries

Is there a fire?

- Yes → Go to Response Flow Chart Attachment #2
- No → Monitor the situation and standby

Radiological event

Follow guidelines in the ERG

Go to Response Flow Chart Attachment #3

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RESPONSE FLOW CHART ATTACHMENT #1

VICTIMS

Walking wounded or uninjured

Detain walking wounded and uninjured personnel suspected of being in contact with the hazard or involved in the incident. Keep them in a treatment holding area within the controlled zone.

Assess and triage victims

Non-walking wounded

Assess and triage victims

More victims to the treatment holding area outside the hazard area staying within the controlled zone. Perform routine emergency care.

Treat victims as if contaminated in the treatment area.

EMT Personnel should:

- Use SCBA or Dust filtering masks
- Wear long-sleeve shirt or coat
- Use disposable gloves

Patients should have:

- Mask placed on to limit inhalation or ingestion of airborne contaminants
- Open wounds bandaged to prevent would contamination
- Outer clothing cut away to remove most contamination
- Clean plastic bag placed over scalp

Transport

Yes

Notify receiving medical facility if possible

No

Notify receiving medical facility if possible

Reassess situation and take appropriate action to protect response personnel, victims, equipment, the public and property (if necessary) based on any new information.

RESPONSE FLOW CHART ATTACHMENT #2

FIRE

Small Fires

Use
- Dry chemical
- CO_2
- Water spray or regular foam

Large Fires

Use
- Water spray, fog, or regular foam.
- Dike fire control water for later disposal.
- If tanks or metal containers are present, cool containers with flooding amounts of water until well after the fire is out. If this is impossible, withdraw from area and let the fire burn.
- Always stay away from the ends of the tank.

Reassess situation and take appropriate action to protect response personnel, victims, equipment, the public, and property (if necessary) based on any new information.

RESPONSE FLOW CHART ATTACHMENT #3

RADIOLOGICAL EVENT

- Call Emergency Response telephone number on the shipping papers. If shipping papers are unavailable or no answer, call appropriate number listed in the back of the ERG.
- Notify radiation authority of the accident situation and conditions.
- Priorities for rescue, life-saving, first aid, and control of fire and other hazards are higher than the priority for measuring radiation levels.
- Isolate spill or leak area at least 50m/160ft in all directions. Stay upwind. Keep unauthorized personnel away.
- Detain and/or isolate uninjured persons or equipment suspected to be contaminated.
- Delay decontamination and clean-up until instructions are received from Radiation Authority.
- Follow specific instructions in the ERG for evacuation, fire or explosion, spill or leak information, first aid information, and health information.

Use *ERG Guide 163* as the guideline for First Response Organizations actions and information if the situation is a known radiological event, but no other information is available about the material.

Reassess situation and take appropriate action to protect response personnel, victims, equipment, the public, and property (if necessary) based on any new information.